

REMARKS

Claims 1-12 are pending in the application. Claims 1-7 stand rejected and claims 8-12 are withdrawn. Claim 1 has been amended. No new matter is added. In light of the foregoing amendments and the following remarks, Applicants earnestly solicit favorable reconsideration.

Claim Rejections - 35 U.S.C. § 112 second paragraph:

The Examiner contends that “a second passage connecting the fuel battery to [an] exterior of the fuel battery” is unclear. That is the Examiner considers the limitation to require a line being added from the fuel battery and connecting it back to the fuel battery.

Applicants amend claim 1 to address the rejection.

On the Merits

Claim Rejections - 35 U.S.C. § 103(a):

Claims 1, 2, 4 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Roberts et al.* (US Application 2001/0055707) in view of *Barton et al.* (US Application 2003/0022041), hereinafter referred to as *Roberts* and *Barton* respectively.

Independent Claim 1:

Independent claim 1 requires in part:

¹a first passage connecting the fuel battery to a purge gas supply source;

²a second passage connecting the fuel battery to [an] exterior;

³a first solenoid valve installed in the second passage;

⁴a current sensor producing an output indicative of current generated by the fuel battery; and

⁵an electronic control unit that opens the first and second solenoid valves to open the first and second passages to supply the purge gas to the fuel battery through the first passage such that residue in the fuel battery is purged to the exterior through the second passage by the purge gas, at a time interval determined from the output of the current sensor.

The Examiner contends that elements 1 - 4, as labeled above, are disclosed by *Roberts*. Specifically, that a first and second passage are disclosed by reference numerals 269 and 268, respectively. As shown in FIG. 3, these passages connect a nitrogen supply to a fuel cell stack. The Examiner then contends that valves 263 and 234 correspond to the first and second solenoid valves, respectively.

Regarding the 4th element, the current sensor, the Examiner acknowledges that it is not disclosed by *Roberts*, but instead contends that it is disclosed by *Barton*. Specifically, the Examiner points to reference character S2 of Fig. 3. S2 is described as “a stack current sensor” in paragraph [0052].

Regarding the 5th element, the electronic control unit, the Examiner contends it is disclosed by microcontroller 40. In paragraph [0077] *Barton* discloses:

In optional step 206, microcontroller 40 can determine the purge duration based on the determined gross stack current. Microcontroller 40 can, for example, rely on a lookup table stored in the persistent memory 42, or can calculate the purge duration based on an empirically derived formula.

However, claim 1 requires that “residue in the fuel battery is purged to the exterior **through the second passage.**” Emphasis added. Recall from above that the Examiner considers

conduit 268 to be a second passage. However, as discussed in paragraph [0044] of *Roberts*, nitrogen flows **from** the purge supply tank 260 to the fuel cell stack through conduit 268. As indicated in Fig. 3 by the arrow of air inlet passage 262 (which is connected to conduit 268), the gas flow seems to be in one direction, into the fuel cell stack, from conduit 268.

Regarding any purged fluids, they seem to flow from the fuel battery to knock drum 222 and reservoir 232, not through conduit 268, which the Examiner considers to be a second passage, as required by claim 1. See paragraph [0041] and Fig. 3. Thus, it does not appear that any residue in the fuel battery is purged to the exterior through the second passage, as required by claim 1.

Additionally, what is determined from the output of the current sensor (S2) in *Barton* is not a time interval of the purge, as suggested by the Examiner in part 8 of the Office Action, but the purge duration. Incidentally, in the claimed invention, the purge duration is determined based on the output of the hydrogen sensor, as described in claim 3.

As such, the references, when combined, do not disclose or fairly suggest the claimed invention.

Dependent Claims 2-7:

As claims 2-7 each ultimately depend from independent claim 1, the arguments presented above regarding claim 1 also apply to claims 2-7.

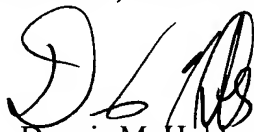
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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